

1.3

Surface Areas of Objects Made from Right Rectangular Prisms

FOCUS

- Determine the surface areas of composite objects made from cubes and other right rectangular prisms.

These cube houses were built in Rotterdam, Netherlands. Suppose you wanted to determine the surface area of one of these houses. What would you need to know?



Nov 24-1:34 PM

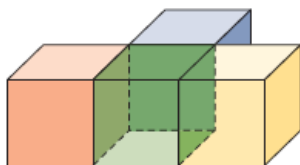
Connect

Here is an object made from 4 unit cubes.

Each face of a cube is square with area 1 unit^2



Take the cubes apart and count how many sides are on each cube.



Based on the picture to the left how many faces of the cube are overlapped?

What is the total surface area?

Nov 24-1:35 PM

DEFINITION:

Composite Object - an object that is made up, composed of, other objects



Nov 24-2:37 PM

Example 1 Determining the Surface Area of a Composite Object Made from Cubes

Determine the surface area of this composite object.

SOLUTION:



Each cube has edge length 2 cm

Nov 24-2:41 PM

YOU TRY!

Determine the surface area of this composite object.



Each cube has edge length 2 cm

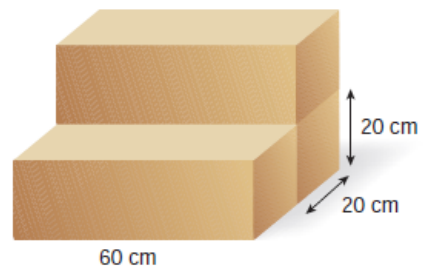
SOLUTION:

Nov 24-2:41 PM

Example 2

Determining the Surface Area of a Composite Object Made from Right Rectangular Prisms

Renee uses 3 pieces of foam to make this chair. Each piece of foam is a right rectangular prism with dimensions 60 cm by 20 cm by 20 cm. Can Renee cover the chair with 2 m^2 of fabric?

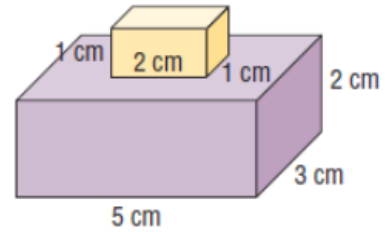


SOLUTION:

Nov 24-2:41 PM

YOU TRY!

How much fabric is needed to cover this object in m^2 ?



SOLUTION:

Nov 24-2:41 PM

Discuss the ideas

1. When a composite object is made from right rectangular prisms, why is the surface area of the object not the sum of the surface areas of the individual prisms?
2. The surface area of an object is the area of a net of the object. How would drawing a net help you determine the surface area of a composite object?

Reflect

Why is it important to consider the areas of overlap when determining the surface area of a composite object? Include an example in your explanation.

Nov 24-3:03 PM

Practice

Page 30 # 4

Page 31 # 7, 8bc,